

WE CLAIM AS OUR INVENTION:

1. A method of improving the tissue quality of an animal, comprising feeding the animal a diet comprising at least 150 ppm mixed tocotrienols.
2. The method of claim 1 wherein the tissue is meat and the quality of the meat is measured by criteria selected from the group consisting of increased pH, improved color value, improved oxidative stability, and reduced purge.
3. The method of claim 1 wherein the diet further comprises alpha-lipoic acid.
4. The method of claim 3 wherein the level of alpha-lipoic acid is at least 500 ppm.
5. The method of claim 1 wherein the diet further comprises N-acetylcysteine.
6. The method of claim 5 wherein the level of N-acetylcysteine is at least 1,000 ppm.
7. The method of claim 1 wherein the diet further comprises alpha-lipoic acid and N-acetylcysteine.

8. The method of claim 1 wherein the animal is a non-ruminant.
9. The method of claim 8 wherein the animal is swine.
10. The method of claim 9 wherein the mixed tocotrienols are introduced into the diet after the swine reaches about 80 pounds body weight.
11. The method of claim 8 wherein the animal is poultry.
12. The method of claim 1 wherein the animal is a ruminant.
13. The method of claim 12 wherein the animal is cattle.
14. The method of claim 1 wherein the diet comprising at least 150 ppm mixed tocotrienols comprises a cereal grain crop genetically modified to have elevated mixed tocotrienol levels.
15. The method of claim 14 wherein the cereal grain crop is corn.
16. The method of claim 1 wherein the diet comprising at least 150 ppm

mixed tocotrienols comprises oil from a plant that has been genetically modified to have elevated mixed tocotrienol levels.

17. The method of claim 1 wherein the mixed tocotrienols comprise a mixture of alpha-, gamma- and delta-tocotrienols.

18. The method of claim 1 wherein the diet further comprises another plant phenolic.

19. The method of claim 18 wherein the plant phenolic is selected from the group consisting of alpha-tocopherol, beta-tocopherol, gamma-tocopherol, delta-tocopherol, ferulic acid, caffeic acid, sinapic acid, quercetin, catechins, anthocyanidins and isoflavonoids.

20. A method of improving the tissue quality of an animal, comprising feeding the animal a diet comprising 50 ppm to 500 ppm mixed tocotrienols.

21. The method of claim 20 wherein the tissue is meat and the quality of the meat is measured by criteria selected from the group consisting of increased pH, improved color value, improved oxidative stability and reduced purge.

22. The method of claim 20 wherein the diet further comprises alpha-lipoic

acid.

23. The method of claim 22 wherein the level of alpha-lipoic acid is at least 500 ppm.

24. The method of claim 20 wherein the diet further comprises N-acetylcysteine.

25. The method of claim 24 wherein the level of N-acetylcysteine is at least 1,000 ppm.

26. The method of claim 20 wherein the diet further comprises alpha-lipoic acid and N-acetylcysteine.

27. The method of claim 20 wherein the diet comprising 50 ppm to 500 ppm mixed tocotrienols comprises a cereal grain crop genetically modified to have elevated mixed tocotrienol levels.

28. The method of claim 27 wherein the cereal grain crop is corn.

29. The method of claim 20 wherein the diet comprising 50 ppm to 500 ppm mixed tocotrienols comprises an oil from a plant that has been genetically

modified to have elevated mixed tocotrienol levels.

30. The method of claim 20 wherein the mixed tocotrienols comprise a mixture of alpha-, gamma- and delta-tocotrienols.

31. The method of claim 20 wherein the diet further comprises another plant phenolic.

32. The method of claim 31 wherein the plant phenolic is selected from the group consisting of alpha-tocopherol, beta-tocopherol, gamma-tocopherol, delta-tocopherol, ferulic acid, caffeic acid, sinapic acid, quercetin, catechins, anthocyanidins and isoflavonoids.